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1. Ishimaru N, Kishimoto H, Hayashi Y, Sprent J. Related Articles, Links

   Regulation of naive T cell function by the NF-kappaB2 pathway.
   Nat Immunol. 2006 Jul;7(7):763-72. Epub 2006 May 28.
   PMID: 16732290 [PubMed - indexed for MEDLINE]

2. Sánchez-Valdepeñas C, Martín AG, Ramakrishnan P, Wallach D, Fresno M. Related Articles, Links

   NF-kappaB-inducing kinase is involved in the activation of the CD28 responsive element through phosphorylation of c-Rel and regulation of its transactivating activity.
   J Immunol. 2006 Apr 15;176(8):4666-74.
   PMID: 16585559 [PubMed - indexed for MEDLINE]

3. Lu LF, Gondek DC, Scott ZA, Noelle RJ. Related Articles, Links

   NF kappa B-inducing kinase deficiency results in the development of a subset of regulatory T cells, which shows a hyperproliferative activity upon glucocorticoid-induced TNF receptor family-related gene stimulation.
   J Immunol. 2005 Aug 1;175(3):1651-7.
   PMID: 16034105 [PubMed - indexed for MEDLINE]

4. O'Neill LA, Greene C. Related Articles, Links

   Signal transduction pathways activated by the IL-1 receptor family: ancient signaling machinery in mammals, insects, and plants.
   J Leukoc Biol. 1998 Jun;63(6):650-7. Review.
   PMID: 9620655 [PubMed - indexed for MEDLINE]

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1 Hsu CL, Kikuchi K, Kondo M. Related Articles, Links

Activation of mitogen-activated protein kinase kinase (MEK)/extracellular signal regulated kinase (ERK) signaling pathway is involved in myeloid lineage commitment.
Blood. 2007 Sep 1;110(5):1420-8. Epub 2007 May 29.
PMID: 17536016 [PubMed - indexed for MEDLINE]

2 Chinen J, Finkelman F, Shearer WT. Related Articles, Links

Advances in basic and clinical immunology.
J Allergy Clin Immunol. 2006 Aug;118(2):489-95. Review. Erratum in: J Allergy Clin Immunol. 2006 Oct;118(4):956.
PMID: 16890776 [PubMed - indexed for MEDLINE]

3 Lindholm CK. Related Articles, Links

IL-2 receptor signaling through the Shb adapter protein in T and NK cells.
Biochem Biophys Res Commun. 2002 Aug 30;296(4):929-36.
PMID: 12200137 [PubMed - indexed for MEDLINE]

4 Blagoev B, Nielsen MM, Angrist M, Chakravarti A, Pandey A. Related Articles, Links

Cloning of rat thymic stromal lymphopoietin receptor (TSLPR) and characterization of genomic structure of murine Tslpr gene.
Gene. 2002 Feb 6;284(1-2):161-8.
PMID: 11891057 [PubMed - indexed for MEDLINE]

5 Xiao H, Yin T, Wang XY, Uchida T, Chung J, White MF, Yang YC. Related Articles, Links

Specificity of interleukin-2 receptor gamma chain superfamily cytokines is mediated by insulin receptor substrate-dependent pathway.
J Biol Chem. 2002 Mar 8;277(10):8091-8. Epub 2002 Jan 11.
PMID: 11788580 [PubMed - indexed for MEDLINE]

6 Ellery JM, Kempshall SJ, Nicholls PJ. Related Articles, Links

Activation of the interleukin 2 receptor: a possible role for tyrosine phosphatases.

Cell Signal. 2000 Jun;12(6):367-73. Review.
PMID: 10889465 [PubMed - indexed for MEDLINE]

☐ 7 Demoulin JB, Renauld JC. Related Articles, Links

Interleukin 9 and its receptor: an overview of structure and function.
Int Rev Immunol. 1998;16(3-4):345-64. Review.
PMID: 9505195 [PubMed - indexed for MEDLINE]

☐ 8 Johnston JA, Bacon CM, Riedy MC, O'Shea JJ. Related Articles, Links

Signaling by IL-2 and related cytokines: JAKs, STATs, and relationship to immunodeficiency.
J Leukoc Biol. 1996 Oct;60(4):441-52. Review.
PMID: 8864127 [PubMed - indexed for MEDLINE]

☐ 9 Demoulin JB, Uyttenhove C, Van Roost E, DeLestré B, Donckers D, Van Snick J, Renauld JC. Related Articles, Links

A single tyrosine of the interleukin-9 (IL-9) receptor is required for STAT activation, antiapoptotic activity, and growth regulation by IL-9.
Mol Cell Biol. 1996 Sep;16(9):4710-6.
PMID: 8756628 [PubMed - indexed for MEDLINE]

☐ 10 Matthews DJ, Clark PA, Herbert J, Morgan G, Armitage RJ, Kinnon C, Minty A, Grabstein KH, Caput D, Ferrara P, et al. Related Articles, Links

Function of the interleukin-2 (IL-2) receptor gamma-chain in biologic responses of X-linked severe combined immunodeficient B cells to IL-2, IL-4, IL-13, and IL-15.
Blood. 1995 Jan 1;85(1):38-42.
PMID: 7803808 [PubMed - indexed for MEDLINE]

☐ 11 Kirken RA, Rui H, Malabarba MG, Farrar WL. Related Articles, Links

Identification of interleukin-2 receptor-associated tyrosine kinase p116 as novel leukocyte-specific Janus kinase.
J Biol Chem. 1994 Jul 22;269(29):19136-41.
PMID: 7518451 [PubMed - indexed for MEDLINE]

☐ 12 Nakamura Y, Russell SM, Mess SA, Friedmann M, Erdos M, Francois C, Jacques Y, Adelstein S, Leonard WJ. Related Articles, Links

Heterodimerization of the IL-2 receptor beta- and gamma-chain cytoplasmic domains is required for signalling.
Nature. 1994 May 26;369(6478):330-3.
PMID: 8183373 [PubMed - indexed for MEDLINE]

☐ 13 Taguchi T. Related Articles, Links

[Interleukin-2 (IL-2)]
Gan To Kagaku Ryoho. 1994 Apr;21(5):719-24. Review. Japanese.
PMID: 8154900 [PubMed - indexed for MEDLINE]

☐ 14 Sugamura K. Related Articles, Links

[Structure and function of IL-2 receptor subunits]
Hum Cell. 1994 Mar;7(1):1-5. Review. Japanese.
PMID: 8025015 [PubMed - indexed for MEDLINE]

☐ 15 DiSanto JP, Dautry-Varsat A, Certain S, Fischer A, de Saint Basile G. Related Articles, Links

Interleukin-2 (IL-2) receptor gamma chain mutations in X-linked severe combined immunodeficiency disease result in the loss of high-affinity IL-2 receptor binding.
Eur J Immunol. 1994 Feb;24(2):475-9.
PMID: 8299698 [PubMed - indexed for MEDLINE]

☐ 16 Voss SD, Hong R, Sondel PM. Related Articles, Links

Severe combined immunodeficiency, interleukin-2 (IL-2), and the IL-2 receptor: experiments of nature continue to point the way.
Blood. 1994 Feb 1;83(3):626-35. Review.
PMID: 8298124 [PubMed - indexed for MEDLINE]

☐ 17 Minami Y, Kono T, Miyazaki T, Taniguchi T. Related Articles, Links

The IL-2 receptor complex: its structure, function, and target genes.
Annu Rev Immunol. 1993;11:245-68. Review.
PMID: 8476561 [PubMed - indexed for MEDLINE]

☐ 18 Voss SD, Sondel PM, Robb RJ. Related Articles, Links

Characterization of the interleukin 2 receptors (IL-2R) expressed on human natural killer cells activated in vivo by IL-2: association of the p64 IL-2R gamma chain with the IL-2R beta chain in functional intermediate-affinity IL-2R.
J Exp Med. 1992 Aug 1;176(2):531-41.
PMID: 1500859 [PubMed - indexed for MEDLINE]

☐ 19 Tsudo M, Karasuyama H, Kitamura F, Tanaka T, Kubo S, Yamamura Y, Tamatani T, Hatakeyama M, Taniguchi T, Miyasaka M. Related Articles, Links

The IL-2 receptor beta-chain (p70). Ligand binding ability of the cDNA-encoding membrane and secreted forms.
J Immunol. 1990 Jul 15;145(2):599-606.
PMID: 2365996 [PubMed - indexed for MEDLINE]

☐ 20 Foxwell B, Taylor D, Ryffel B. Related Articles, Links

Comparison of the structure of the murine interleukin 2 (IL 2) receptor on cytotoxic and helper T cell lines by chemical cross-linking of 125I-labeled IL 2.
Eur J Immunol. 1988 Oct;18(10):1515-9. Erratum in: Eur J Immunol 1989 Jan;19(1):221.
PMID: 2973414 [PubMed - indexed for MEDLINE]

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☑ **1:** Anticancer Drug Des. 2000 Aug;15(4):239-44.

Related Articles, Links

Naturally occurring and synthetic inhibitors of NF-kappaB functions.

Umezawa K, Ariga A, Matsumoto N.

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Nuclear factor (NF)-kappaB is a transcription factor that induces the immunoglobulin kappa chain, cytokines such as interleukin (IL)-1, IL-2, IL-6, IL-8, tumor necrosis factor (TNF)-alpha and interferon gamma, and cell adhesion proteins. It also induces anti-apoptotic proteins, and inhibits TNF-alpha and anticancer drug-induced apoptosis. Therefore, NF-kappaB function inhibitors may be useful as anti-inflammatory and anticancer agents. Microbial products such as panepoxydone, cycloepoxydon and gliotoxin are known to inhibit activation of NF-kappaB. We have designed and synthesized new NF-kappaB inhibitors from the structure of an antibiotic, epoxyquinomicin C. The designed compound, DHM2EQ, inhibited TNF-alpha-induced activation of NF-kappaB and showed a therapeutic effect in mouse rheumatoid arthritis model.

Publication Types:
- Review

PMID: 11200499 [PubMed - indexed for MEDLINE]

☐ **2:** Expert Opin Investig Drugs. 2001 Mar;10(3):467-76.

Related Articles, Links

The immunotherapeutic potential of melatonin.

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The interaction between the brain and the immune system is essential for the adaptive response of an organism against environmental challenges. In this context, the pineal neurohormone melatonin (MEL) plays an important role. T-helper cells express G-protein coupled cell membrane MEL receptors and, perhaps, MEL nuclear receptors. Activation of MEL receptors enhances the release of T-helper cell Type 1 (Th1) cytokines, such as gamma-interferon (gamma-IFN) and IL-2, as well as of novel opioid cytokines. MEL has been reported also to enhance the production of IL-1, IL-6 and IL-12 in human monocytes. These mediators may counteract stress-induced immunodepression and other secondary immunodeficiencies and protect mice against lethal viral encephalitis, bacterial diseases and septic shock. Therefore, MEL has interesting immunotherapeutic potential in both viral and bacterial infections. MEL may also influence haemopoiesis either by stimulating haemopoietic cytokines, including opioids, or by directly affecting specific progenitor cells such as pre-B cells, monocytes and NK cells. MEL may thus be used to stimulate the immune response during viral and bacterial infections as well as to strengthen the immune reactivity as a prophylactic procedure. In both mice and cancer patients, the haemopoietic effect of MEL may diminish the toxicity associated with common chemotherapeutic protocols. Through its pro-inflammatory action, MEL may play an adverse role in autoimmune diseases. Rheumatoid arthritis patients have increased nocturnal plasma levels of MEL and their synovial macrophages respond to MEL with an increased production of IL-12 and nitric oxide (NO). In these patients, inhibition of MEL synthesis or use of MEL antagonists might have a therapeutic effect. In other diseases such as multiple sclerosis the role of MEL is controversial. However, the correct therapeutic use of MEL or MEL antagonists should be based on a complete understanding of their mechanism of action. It is not yet clear whether MEL acts only on Th1 cells or also on T-helper Type 2 cells (Th2). This is an important point as the Th1/Th2 balance is of crucial importance in the immune system homeostasis. Furthermore, MEL being the endocrine messenger of darkness, its endogenous synthesis depends on the photoperiod and shows seasonal variations. Similarly, the pharmacological effects of MEL might also be season-dependent. No information is available concerning this point. Therefore, studies are needed to investigate whether the immunotherapeutic effect of MEL changes with the alternating seasons.

Publication Types:
- Review

PMID: 11227046 [PubMed - indexed for MEDLINE]

☐ **3:** Ann N Y Acad Sci. 2000;917:825-34. Related Articles, Links

Full Text Ann N Y Acad Sci

Perturbations of arginine vasopressin secretion during inflammatory stress. Pathophysiologic implications.

Chikanza IC, **Petrou P**, **Chrousos G**.

Bone & Joint Research Unit, St. Bartholomews & Royal London School of Medicine and Dentistry, New Science Building, Charterhouse Square, London EC1 6BQ, UK. i.c.chikanza@mds.qmw.ac.uk

Pro-inflammatory cytokines, such as interleukin-1 beta (IL-1 beta), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF alpha), released from inflammatory foci, can activate the hypothalamus to produce corticotrophin-releasing hormone (CRH) and arginine vasopressin (AVP). These hypothalamic peptides in synergy increase ACTH production by the pituitary gland and hence corticosteroid (CS) secretion by the adrenal cortices. CS dampens inflammation. The pituitary also produces prolactin (PRL), which is pro-inflammatory, and macrophage inhibitory factor (MIF), which by counteracting the anti-inflammatory and immunosuppressive effects of CS, is pro-inflammatory. Lewis rats develop a variety of induced-autoimmune inflammatory conditions, such as streptococcal cell wall arthritis, whereas the histocompatible F344 Fisher rats are resistant to this condition. Lewis rats have a defective hypothalamic-pituitary adrenal (HPA) response to a variety of hypothalamic stimuli, but have augmented systemic secretion of AVP. Patients with rheumatoid arthritis (RA) have deficient CS with exaggerated PRL responses to inflammatory stimuli. Within inflammatory foci, CRH is pro-inflammatory. AVP, which augments autologous mixed lymphocyte reactions, can replace the IL-2 requirement for gamma IFN production by T cells via V1a receptors, and potentiates primary antibody responses, is also pro-inflammatory. Lewis rats have significantly high plasma levels, hypothalamic content, and in vitro release of AVP in comparison to the inflammatory disease-resistant Fischer rats. Immunoneutralization of AVP attenuates inflammatory responses. In Sprague-Dawley rats, AVP potentiates PRL secretion. Preliminary studies in patients with RA have shown that the circulating levels of AVP are significantly increased, which might be a compensatory response to low CS levels or a result of elevated levels of IL-6 in these patients but could nevertheless contribute to rheumatoid inflammation. A similar observation has been made in patients with ankylosing spondylitis.

Publication Types:
- Review

PMID: 11268412 [PubMed - indexed for MEDLINE]

☑ **4:** Pol Merkur Lekarski. 2001 Jun;10(60):477-9. Related Articles, Links

[Current opinions on immunological processes in rheumatoid arthritis during pregnancy]

[Article in Polish]

Biesiada L, Krasomski G, Tchórzewski H.

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The essential in pathogenesis of RA is induction of incorrect immunological response against synovial and connective tissue antigens, which depends of CD4+ T-cells activation by specific antigen. This stimulation leads to releasing Th1 lymphokines. The most important cytokine is TNF-alpha. An increased level of TNF-alpha, IL-1, IL-6, GM-CSF, IL-8 was observed in patients with RA. PDGF, FGF, TGF, C-X-C a chemokines (IL-GRO-alpha, ENA78) and CCb chemokines (RANTES, MCP1 MIP1 alpha) are also involved in synovial hyperplasia in RA. During a pregnancy a clinical improvement in women with RA is frequent. The reason of this fact is probably connected with Th2 predominance (IL-4, IL-10) caused by presence of fetal tissues. Specific, cell-mediated immunity is suppressed and changed to Th2 by progesterone

Progesterone stimulates T cells to PIBF production, which decreases NK activity. Th2 cytokines (Il-6, IL-10, IL-13, TGF) are expressed on decidua and inhibit secretion of Th1 cytokines (IL-2, INF gamma, TNF-alpha, IL-1 alpha, IL-1 beta). Immunosuppression caused by pregnancy probably decreases inflammatory and destructive reactions in tissues women with RA. The first attack of this disease frequently observed during puerperium is connected with a high level of prolactin and a low of estrogens, which causes a increased release of IL-2 and has a main influence on initiation and increasing of inflammatory process in RA.

Publication Types:
- English Abstract
- Review

PMID: 11503269 [PubMed - indexed for MEDLINE]

☑ **5:** Clin Lymphoma. 2000 Nov;1 Suppl 1:S37-40. Related Articles, Links

DAB(389)IL-2 (denileukin diftitox, ONTAK): other potential applications.

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DAB(389)IL-2 (denileukin diftitox, ONTAK) is an interleukin-2 receptor (IL-2R)-specific ligand fusion protein that may potentially be selective for IL-2R-expressing malignancies. The activity of DAB(389)IL-2 in the treatment of cutaneous T-cell lymphoma has established the feasibility of utilizing such a targeted therapeutic in disseminated disease with acceptable toxicity. Data from the phase I trial suggest that the definition of activity in other cancer types, including other non-Hodgkin's lymphomas (NHL), is warranted. Three NHL patients in this study responded, two of whom had follicular lymphomas, with the third having a primary intermediate-grade B-cell NHL that was refractory to chemotherapy and stem cell transplant. This patient has remained in complete remission over 3 years after treatment with DAB(389) IL-2. Patients treated to date have had IL-2R-positive tumors, but this remains a very complex clinical issue. The need for a threshold level of receptor expression, the difficulty in obtaining representative tissue, the lack of an assay that accurately reflects high-affinity receptor, and the potential difficulty of observer variability in evaluating the assays should point us toward examining response rates in cancer patients where IL-2R cannot be detected or is unknown. The potential to target the high-affinity IL-2R supports the development of this agent in transplantation and in autoimmune diseases. Targeting IL-2R-expressing lymphocytes may be an effective strategy for the prevention of graft rejection and to treat or prevent graft-versus-host disease. DAB(389)IL-2 has been examined in clinical trials of psoriasis and rheumatoid arthritis and has shown promising results. The potential utility in other autoimmune disorders is unknown, but diseases such as systemic lupus, scleroderma, and vasculitis also may be effective candidates for such ligand fusion therapy.

Publication Types:
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PMID: 11707862 [PubMed - indexed for MEDLINE]